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A multi-site audit to assess how women with complex social factors access and engage with maternity services

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Abstract

Objective:

To audit women with socially complex lives' documented access to and engagement with antenatal care provided by three inner city, UK maternity services in relation to birth and neonatal outcomes, and referral processes.

Background:

Women living socially complex lives, including young mothers, recently arrived immigrants, non-English speaking, and those experiencing domestic violence, poor mental health, drug and alcohol abuse, and poverty experience high rates of morbidity, mortality and poor birth outcomes. This is associated with late access to and poor engagement with antenatal care.

Method:

Data was collected from three separate NHS trusts data management systems for a total of 182 women living socially complex lives, between January and December 2015. Data was presented by individual trust and compared to standards derived from NICE guidelines, local trust policy and national statistic using Excel and SPSS Version 22. Tests of correlation were carried out to minimise risks of confounding factors in characteristic differences.

Results:

Non-English speaking women were much less likely to have accessed care within the recommended timeframes, with over 70% of the sample not booked for maternity care by 12 weeks gestation. On average 89% primiparous women across all samples had less than the recommended number of antenatal appointments. No sample met the audit criteria in terms of number of antenatal appointments attended. Data held on the perinatal data management systems for a number of outcomes and processes was largely incomplete and appeared unreliable.

Conclusion:

This data forms a baseline against which to assess the impact of future service developments aimed at improving access and engagement with services for women living with complex social factors. The audit identified issues with the completeness and reliability of data on the perinatal data management system.

List of Abbreviations

BMI, Body Mass Index; weight in kilograms divided by height in meters squared.(HSCIC 2015b); Booking, The appointment where the woman enters the maternity care pathway, characterised by information giving and detailed history-taking to help the woman choose the most appropriate antenatal care pathway. (NICE 2008a); Clinical Governance, the framework through which NHS organisations are accountable for continuously improving the safety and quality of services they provide(Department of Health 1998); Common Mental Health, Depression, generalised anxiety disorder, panic disorder, obsessive-compulsive disorder, post-traumatic stress disorder and social anxiety disorder.(NICE 2014); Complex social factors, Women who are substance misusers Recent migrants, refugees, asylum seekers and Women with little or no English Young women aged under 20 Women experiencing domestic abuse (NICE 2010); Domestic violence / abuse, An incident of threatening behaviour, violence or abuse (psychological, physical, sexual, financial or emotional) between adults who are or have been intimate partners or family members, regardless of gender or sexuality. It can also include forced marriage, female genital mutilation and 'honour violence'.(NICE 2010); Drug or alcohol dependency, Regular use of recreational drugs, misuse of over-the-counter medications, misuse of prescription medications, misuse of alcohol or misuse of volatile substances (such as solvents or inhalants) to an extent where physical dependence or harm is a risk (to the woman and/or her unborn baby) (NICE 2010); High obstetric risk, Women with pregnancy related problems or pre-existing conditions, who require an obstetrician as a lead professional; IMD, Index of multiple deprivation: a composite measure based on income; employment; health and disability; education; skills and training; barriers to housing and other services; crime; living environment. (APHO 2010); Induction of labour, The artificial initiation of labour (NICE 2008); Low birth weight,

Birth weight of a liveborn infant of less than 2,500 g (5 pounds 8 ounces) regardless of gestational age. (WHO 2016); Maternal death / mortality, Death of a women while pregnant or within 42 days of the end of the pregnancy from any cause related to or aggravated by the pregnancy or its management, but not from accidental or incidental causes. (Knight *et al* 2015); MBRRACE-UK, Mothers and Babies: Reducing Risk through Audits and Confidential Enquiries across the UK (Knight *et al* 2015); Multiparous, A live born baby (born at 20+0 weeks gestational age or later, or with a birthweight of 400g or more) who died before 28 completed days after birth. (Draper et al 2015); NICE, National Institute for Health and Care Excellence (N/A); Primiparous, A woman who has never given birth to a live infant (NICE 2008b); Perinatal death / mortality, A stillbirth or early neonatal death (Draper et al 2015); Pre-term labour/birth, Delivery before 37 weeks gestation (WHO 2016); Severe mental health, Severe and incapacitating depression, psychosis, schizophrenia, bipolar disorder, schizoaffective disorder and postpartum psychosis. (NICE 2014)

Introduction

The most recent report into maternal morbidity and mortality in the United Kingdom between 2011 and 2013 (Mothers and Babies: Reducing Risk through Audits and Confidential Enquiries across the UK (Knight et al, 2015) revealed that women with complex social factors and those from minority ethnic groups are experiencing higher rates of stillbirth, preterm birth and fetal loss, and disproportionately high numbers of maternal death. These social factors can include certain ethnic minorities, young mothers, those living in poverty, recently arrived immigrants, non-English speaking women, and those experiencing domestic violence, poor mental health, drug and alcohol abuse (National Institute of Clinical Excellence (NICE) 2010, Knight et al, 2015). Stillbirths are twice as common among mothers living in England's poorest 10% of regions than the richest 10% (Seaton et al, 2012). Risk factors for premature birth include low socioeconomic and educational status, young motherhood, drug and alcohol abuse, depression and black and minority ethnic groups (Goldenburg et al, 2008). This is important as a recent enquiry into stillbirth (Draper *et al,* 2015) found a ten times higher risk of a baby dying if it is born before 32 weeks, and an inverse relationship between birthweight and perinatal mortality. Research has also shown that in high-income countries, women from socially disadvantaged groups are at greatest risk of the poor outcomes associated with increased obstetric intervention, including admission to neonatal unit, induction of labour, epidural anaesthesia, instrumental childbirth and caesarean section (D'Souza and Garcia,2004; Lawn et al., 2009; Oakley et al.,2009, Rayment-Jones at al, 2015).

Women living with complex social factors are in greater need of support during the antenatal period but they can often find it hard to access and engage with care (Healthcare Commission 2006, NICE 2010, Lewis 2011). There are multiple factors that may discourage this group of women from accessing care, such as difficulty communicating with healthcare workers (including language barriers) and anxieties about their attitudes, practical obstacles to accessing care, a lack

of familiarity with services and becoming overwhelmed by multiple organisations (NICE, 2010). It is known that poor engagement with antenatal care is associated with poor maternal and neonatal morbidity and mortality (Hollowell et al 2011, Kapaya et al, 2015).

A case-control study by Nair *et al* (2015) indicated that inadequate use of antenatal care is also a factor that significantly increases the chance of maternal death. The study looked into factors that were associated with maternal death resulting from direct pregnancy-related causes using data from the MBRRACE *Confidential Enquiry into Maternal Deaths* looking into deaths between 2009 and 2012 (Knight, 2014). This data was then compared with data on women who survived severe life-threatening complications in pregnancy and childbirth between 2005 and 2013 from the *UK Obstetric Surveillance System* (Nair, 2015). The study found that 15.6% of the women who died received inadequate antenatal care compared to 1.1% of those who survived life-threatening complications. Of the women who died between 2011 and 2013, 84% of them accessed antenatal care during their pregnancy (Knight, 2015). Of these women, only 76% received the minimum level of care as recommended by NICE (2008), 40% were booked in for maternity care by the recommended gestation and 34% attended the recommended amount of antenatal appointments. Of the women who died as a direct result of psychiatric disorders, 81% received antenatal care but only 23% received the recommended level of antenatal care. Only a third of these women booked before the recommended 10 weeks gestation and less than two thirds received the minimum level of antenatal care.

A previous observational study by Rayment-Jones et al (2015) comparing childbirth outcomes of women with social risk factors accessing different models of care found significant differences between birth outcomes and processes such as gestation at booking, antenatal admission, and referrals to support services. The study concluded that further insight was needed into how women with different social complex factors access and engage with maternity care in wider settings.

In order to optimise women and their infants childbirth outcomes, improve standards and develop a more effective service for women with social risk factors it is important to monitor aspects of antenatal care provision. Clinical audit enables care providers to reflect on the effectiveness of the way things are being done and implement changes where necessary (Paton et al, 2015). The purpose of this audit is to ascertain whether guidelines set out by the NICE (2015 and 2010) are being met.

Methodology

Aim: To audit how women with socially complex lives access and engage with maternity services within inner city, NHS Trusts

Objectives

- **Primary Outcomes**: Report gestation at booking and the number of antenatal appointments attended
- **Secondary Outcomes**: Present maternal and neonatal process and outcome data, including referrals to multidisciplinary professionals and support services
- Compare findings between different social complexities and national standards and statistics
- Establish recommendations for future clinical practice, service provision and research

Clinical Audit

An audit was carried out across 3 large NHS Teaching Trusts in London providing maternity services to the local population as part of an undergraduate project. The audit population was pregnant women booking for antenatal care between 1/1/2015- 31/12/2015 with at least 1 social risk factor (See table 2 for full inclusion criteria for each trust). 182 women were eligible for inclusion. A primary, social risk factor was chosen for two of the audit sites, whereas the third site collected data on all social risk factors, this allowed for comparison between different risk factors, whilst still collecting data on any other risk factors recorded for all women. These primary risk factors- young motherhood and non-English speaking women, were chosen due to their known risk factors for poorer access and engagement, and birth outcomes (Knight, 2015, NICE 2010).

Data were collected using a previously validated audit data form (Rayment-Jones 2015), and were retrospectively extracted from maternity records and electronic databases. The data from Trust 1 was cross-checked to reduce errors in data collection and input. The audit was registered in all three audit sites and was compliant with local clinical governance policies. The outcomes and processes of women and their neonates were audited against the national guidance applicable in 2010 and 2015 (Table 1). Data on women's demographics (Table 3) were also collected and analyzed against the outcome findings.

Statistical analysis

The data collected from the three separate NHS trusts were assimilated in a common database. Data was presented by individual trust and analysed using Excel and SPSS Version 22. Tests of

correlation were carried out to minimise risks of confounding factors in characteristic differences of greater than 10%. For prevalence estimates of the primary outcomes, 95% confidence intervals (CI) were calculated. Descriptive statistics only are presented for secondary outcomes.

Sample Demographics

See Table 3 for sample demographics. As anticipated due to the nature of the sample selection, the three groups had a number of different characteristics in terms of key medical and socio-demographic factors (Table 3). Tests of correlation were carried out to minimise risks of confounding factors in characteristic differences of greater than 10% between the two groups. This included age, parity, smoking status, ethnicity, obstetric risk, social complexity and the Index of Multiple Deprivation (IMD) scores. Logistic regression modelling found the relationship between each trust and the primary outcomes was not changed by the inclusion of confounding factors in the women's demographics. Due to this lack of difference the initial unadjusted statistics are reported in this paper. Full datasets, statistics output documents and adjusted results are available from the researcher.

*Definition of IMD score: a composite measure based on income; employment; health and disability; education, skills and training; barriers to housing and other services; crime; living environment. Each domain's contribution to the overall score is weighted differently, with income and employment deprivation weighted the most (Payne & Able, 2012), and smoking statuses were high compared to national averages (ONS, 2016).

Findings

Process data in table 4 shows similar results across all samples for women booking for maternity care by 10 weeks, averaging 15%. However, women attending Trust 2 were much less likely to have accessed care within recommended timeframes, with over 70% of the sample not booked for maternity care by 12 weeks gestation. On average 89% primiparous women across all samples had less than the recommended number of antenatal appointments. Table 4 shows that no sample met the audit criteria in terms of number of antenatal appointments attended. Mean number of antenatal admissions and length of postnatal stay was similar across each sample.

Translation services were utilised for 43% of the sample of women who did not speak or understand English in Trust 2. No record of translation services was documented for the other samples. Young women attending Trust 1 were more likely to be referred to social services and family nurse partnership schemes than the other groups, although the women attending Trust 3 were more likely to be referred to domestic violence advocacy and other support services

compared to the other samples. This relates to the sample demographics as trust 3 had a higher proportion of women who had disclosed domestic violence.

The findings in table 5 for birth outcomes showed that the young women attending Trust 1 were more likely to have a spontaneous vaginal delivery compared to women who did not speak English in Trust 2 and those with mixed social complexity in Trust 3, who experienced higher caesarean section rates. Women in Trust 2 were more likely to experience intervention in labour such as induction of labour and continuous CTG despite being the least likely group to be 'high risk' at the onset of labour. These women were also the most likely group to have a blood loss of more than 500mls (table 6).

Table 6 shows non-pharmalogical analgesia in Trust 1 was very low compared to the other two groups. Women attending Trust 3 were most likely to experience epidural or spinal analgesia. Water for labour and/or birth and opioid use were not recorded at Trust 1.

Place of birth findings were not recorded for women attending Trust 1, and were similar for Trust 2 and 3, with an average of 95% attending an obstetric led labour ward. This is despite only half of the sample presenting as 'high risk' in labour.

Table 8 shows similar neonatal outcomes across each sample in terms of prematurity, low birth weight and neonatal admissions. There was one neonatal death across the whole sample. Women attending Trust 2 are more likely to mixed feed. Skin-to-skin was not recorded at trust 1, and was much higher in trust 3 than trust 2.

Discussion

This audit set out to assess documented levels of access to and engagement with antenatal care for women with identified complex social risk factors. Electronic and handheld patient records were used to examine women's demographics, how early they booked for antenatal care, how many of their scheduled appointments they attended and their childbirth and neonatal outcomes. Primary outcomes were statistically analysed and compared to national recommendations.

Demographics

As anticipated due to the nature of the sample selection, the three groups had a number of different characteristics in terms of key medical and socio-demographic factors (Table 3). Logistic

regression modelling found the relationship between each trust and the primary outcomes was not changed by the inclusion of confounding factors in the women's demographics. The demographic data from the three trusts showed rich ethnic diversity; the proportion of clients attending trust 1 and 3 recorded as Black African or Black Caribbean was considerably higher than the national average (HSCIC 2016), whereas almost half of the women attending trust 2 who not do speak English are were white European (table 4). This presents potential differences in cultural approaches to how women access and engage with their maternity care (NICE, 2010). Indeed, only 29% of the women attending trust 2 had booked for maternity care by 20 weeks gestation, compared to 86% and 82%. This difference was not noted in number of appointments attended, with those women who had booked for care in Trust 2 receiving a similar number of appointments as the other 2 samples, however again, all samples fell short of the recommended number of appointments.

A large proportion of each sample were from the most deprived quintiles of London, this is unsurprising as complex social factors and deprivation are strongly associated (Marmot and Bell, 2012). It is however an important finding when considering access to appropriate maternity services due to the correlation between socioeconomic deprivation and poor neonatal outcomes (Draper *et al* 2015, Mercer & Anumba (2013).

An interesting finding in women's demographics shown in table 3 is the much smaller proportion of women in Trust 2 who were considered to have a high obstetric risk at their booking appointment. It is unknown whether or not this is due to only 43% of those non-English speaking women having documented access to translation services, therefore medical histories may not have been discussed in sufficient detail. This could also be reflected in this samples lower number of 'other social risk factors'. This is reflective of the findings of a systematic review of immigrant women's experiences of poor communication in maternity services (Small et al, 2014).

Another notable demographic across all trusts is that 57% of the total sample had at least one additional social risk factor, with 37% having 2 or 3 additional risk factors. This is important to consider when designing individualised maternity services for women with social risk factors as a complex care pathway will often need to be put in place through the use of the multi-disciplinary services (Sandall et al, 2016).

Performance against process criteria for primary outcomes

Table 9 shows that no standard was met when comparing the primary outcomes with national recommendations. Similar results were found across all samples for gestation at booking, however, women attending Trust 2 were much less likely to have accessed care within recommended timeframes, with over 70% of the sample not booked for maternity care by 12 weeks gestation. This is considerably higher than equivalent figures across all trusts in England (24%) (HSCIC 2015). On average 89% primiparous women across all samples had less than the recommended number of antenatal appointments. Although the causal relationship between late booking, inadequate engagement and poor outcomes is as yet unknown (Mercer & Anumba 2013, Kapaya *et al* 2015), NICE (2010) recognise that early booking for women with social complex factors is even more important than for the general population. This is partly because these women's pregnancies are more likely to be unplanned, are associated with greater risk of premature birth, low birth weight and stillbirth, and they are more likely to be experiencing poor nutritional status and health behaviours (Kapaya, 2015, Marmot 2010 and Williamson 2006). This data forms a baseline against which to assess current services and implement future service developments to increase timely access and sustained engagement with antenatal care.

Secondary outcomes

Referrals to support services (table 4)

Translation services were utilised for 43% of the sample of women who did not speak or understand English in Trust 2. No record of translation services was documented for the other samples. It is unknown how many women experience appropriate translation services throughout their maternity care but a key recommendation from Small et al's (2014) review suggested implementing strategies for overcoming language barriers to effective communication; and better information provision.

Other referral outcomes seemed to correlate with each samples demographics, with more women at trust 2 being referred to social services and the family nurse partnership program, and women attending trust 3 being referred to domestic violence advocacy. Considering 27% of the sample had a common or severe mental health issue (table 5), only 2% were referred to psychiatric services. Rayment-Jones et al's (2016) study of women with complex social factors found similar numbers of women with severe mental health issues, although 19% of those accessing standard maternity care were referred to psychiatry services, increasing to 56% for those who received continuity of care. This difference could be due to different service provision at the trust in Rayment-Jones et al's (2015) study, where there is an on-site perinatal psychiatrist. Given the

disproportionate amount of women with mental health issues dying in the postnatal period (Knight, 2015, London SCN 2016), this is an important finding that warrants further review.

Maternal Birth Outcomes (tables 5,6,7)

Considering that approximately half of the whole sample were deemed to have a high obstetric risk, table 5 shows the overall outcomes for each sample are positive, with high spontaneous vaginal delivery rates for young mothers (87%) and average caesarean section rates (25%) comparable to the national average of 26% (BirthChoice, 2015). Table 6 shows differences between the samples use of non-pharmalogical analgesia and epidural use, with the young mums attending Trust 1 least likely to have an epidural. Unfortunately place of birth was not recorded for this sample of women as it would have been useful to compare their outcomes to the high proportion (95%) of women attending labourward in Trusts 2 and 3 (table7).

Table 5 shows intervention rates were higher than average with women who did not speak English being more likely to experience intervention in labour such as induction of labour (71%) and continuous CTG (68%) despite being the least likely group to be 'high risk' (46%) at the onset of labour. These women were also the most likely group to have a blood loss of more than 500mls and need perineal suturing. These findings appear to reflect Dahlen et al's (2013) large, population based study in Australia that compared birth outcomes of women born in Australia compared to those from overseas. The study found the highest caesarean section, instrumental birth, and episiotomy rates seen in migrant women. Again, there appear to be interesting differences between the samples that suggests a need for further investigation in order to implement individualised services for women, for example culturally appropriate birth preparation classes with integrated translation services (Berman, 2006).

Neonatal birth outcomes

The audit found similar neonatal outcomes across each sample in terms of prematurity, low birth weight and neonatal admission. Women attending Trust 2 are more likely to mixed feed. This is an unsurprising outcome due to cultural norms (Fischer and Olsen, 2014). Skin-to-skin was not recorded at trust 1, and was much higher in Trust 3 than Trust 2, this (as many outcomes), could be due to the nature of recording data, cultural, or institutional practice norms. A future audit could observe this practice in order to identify the causal factors.

Strengths and Limitations

There is conflicting evidence as to whether audit is able to improve clinical practice, but it is currently accepted as the best available tool for measuring practice as part of clinical governance and can be useful in comparing the outcomes of different groups (Paton et al 2015). This audit measures process criteria against standards as defined by NICE (2010). These are 'ideal standards', the highest level of performance that could be provided under ideal conditions without any constraints on resources (Burgess 2011). Ideal standards are rarely achieved in real world circumstances. In retrospect it would have been helpful to agree in advance with the Trusts key stakeholders 'minimum standards' and 'optimum standards' for these criteria. This would have provided more context to the performance results and a more meaningful measurement of performance.

There were several limitations to this audit, the most significant being sample size and the differences between the three trust sites, making extensive statistical testing unfeasible. Another limitation that is common with retrospective audit of this nature is the lack of complete data and differences between the three trusts essential data collection measures. Data was not available at Trust 1 for a number of birth outcomes including place of birth, an important factor in determining birth outcomes (Brocklehurst et al, 2011). All the hospitals involved in the audit provided different models of care for women, with some women receiving continuity of care and other specialised services, something that is known to optimise outcomes for women (Sandall et al, 2016). The analysis does not account for these potential confounding factors as they could not be separated and the sample sizes would be too small to analyse a number of different models of care, although this is a recommendation for future research.

Conclusion

Clinical audit is part of a change process, identifying the need for change, implementing change and re-auditing to assess the impact of change (Burgess 2011). There are some clear implications and recommendations emerging from this audit. The completed reports have been uploaded onto trusts audit databases and disseminated to the individual audit sites in order to assist their decision making when planning services for women living with social complex factors. Key recommendations from this audit include; ensuring different trusts are recording identical database measures in order to be able to reliably compare findings between trusts, evaluate different models of care accessed by women with different social risk factors, trial services that aim to improve access and engagement for this population, and identify gaps in service provision and the communication barriers experienced by women who do not speak English.

Ethical approval

Ethical approval not required as this was an audit, however the audit was compliant with the local clinical governance policies at each participating hospital site, and registered on the audit databases.

Consent for Publication

N/A

Availability of data and materials

The datasets used and analysed during the current audits are available from the corresponding author on reasonable request.

Competing interests

The authors declare that they have no competing interests.

Authors' contributions

Conception and design of audit: HRJ. Data acquisition: EB, CM, CN, JO'D. Analysis and interpretation of data: All. Drafting: HRJ. Revision and final approval of the final manuscript: All authors.

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Table 1: Criteria and standards

No	Name	Criteria	Standard	Standard based on

No	Name	Criteria	Standard	Standard based on
1	Gestation at booking	•Commissioners should ensure that the following are recorded separately for each complex social factor grouping: The number of women who attend for booking by 10, 12+6	100%	Local Hospital Guidelines (GSTT 2012) (Appendix 4)
2	Antenatal appointments	Clients of YPM with uncomplicated pregnancies should have at least 10 antenatal appointments if they are nulliparous and least 7 antenatal appointments if they are multiparous	100%	NICE complex social factors guidance (NICE 2010)

Table 2: Inclusion Criteria

Inclusion Criteria	Trust 1 (GSTT)	Trust 2 (KCH)	Trust 3 (CW)
Estimated Due Date Between	01/01/2015-31/12/2015	1/1/2015-1/1/2016	1/1/2015- 1/1/2016
Records accessible	Electronic database; BadgerNet	Handheld Records	Electronic Database; CMIS
Social Complexity	Young mothers; Age < 20 at the date of their infant's birth.	Non-English speaking women	Any recorded social complexity
Models of care	Young-Parents	Standard maternity	Standard maternity

	midwives-providing antenatal continuity only	care, specialist migrant midwifery care, and midwifery group practice.	care and Specialist vulnerable midwives providing antenatal continuity

Table 3: Characteristics of women at time of booking. Values given as mean (±SD) or n(%)

Characteristics	**Trust 1 n=68**	**Trust 2 n=35**	**Trust 3 n=79**	**Total n=182**
Age (years)	18 (±SD 1.0)	27 (±SD 6.4)	29 (±SD 10.2)	25 (±SD 9.1)
Body Mass Index (BMI)	24 (±SD 3.9)	28 (±SD 5.8)	24 (±SD 4.9)	25 (±SD 5.0)
Smoker	6 (9%)	1 (3%)	18 (23%)	24 (13%)
Primiparous	57 (84%)	14 (40%)	47 (59%)	118 (65%)
Ethnicity:				
White European	20 (29%)	17(49%)	29 (37%)	66 (36%)
Black African	8 (12%)	5(14%)	16 (20%)	29 (16%)
Black Caribbean	10 (15%)	0	4 (5%)	14 (8%)
Other mixed	7 (10%)	(0%)	7 (9%)	14 (8%)
Asian	0	7 (20%)	8 (10%)	15 (8%)
Middle Eastern	0	4 (11%)	2 (3%)	6 (3%)
Unknown/Missing	23 (34%)	2 (6%)	13 (16%)	38 (21%)
High Obstetric Risk (Booking)	44 (56%)	8 (23%)	43 (54%)	95 (52%)
IMD Quintile:				
1st (least deprived)	1 (2%)	0	1 (1%)	2 (1%)
2nd	0	0	8 (10%)	8 (4%)
3rd	3 (4%)	17 (49%)	14 (18%)	34 (19%)
4th	29 (42%)	8 (23%)	29 (37%)	66 (36%)
5th (most deprived)	35 (52%)	7 (20%)	27 (34%)	69 (38%)
Complex Social Factors:				
Domestic Violence	3(4%)	2(6%)	34 (43%)	39 (21%)
Age 19 or under	68 (100%)	2(6%)	6(8%)	76 (42%)
Drug/Alcohol	1 (1%)	0	14 (18%)	15 (8%)
Safeguarding Issues	23 (34%)	3(9%)	14 (18%)	40 (26%)
Asylum Seeker/Refugee	2 (3%)	13(37%)	6 (8%)	21 (12%)
Homeless	0	14(40%)	8 (10%)	22 (12%)
Non-English speaking	4 (6%)	35 (100%)	10(13%)	49 (27%)
Physical or Learning Disability	5 (7%)	0	5 (6%)	10 (5%)

Common Mental Health	8 (12%)	1 (3%)	22 (28%)	31 (17%)
Severe Mental Health	4 (6%)	0	14 (18%)	18(10%)
Additional complex factors:				
One	40 (59%)	20 (57%)	43 (55%)	103(57%)
Two	15 (22%)	2 (6%)	20 (25%)	37(20%)
Three	10 (15%)	8 (23%)	13 (16%)	31(17%)
Four or more	3 (4%)	5 (14%)	3 (4%)	11(6%)

Table 4: Access and engagement, continuity of carer and referral processes

	Trust 1 n=68	**Trust 2 n=35**	**Trust 3 n=79**	**Total n=182**
Booked by 10/40	11(16%)	6 (18%)	11(14%)	28 (15%)
Booked by 12+6/40	21 (47%)	4 (12%)	36(46%)	61 (34%)
Booked by 20/40	58 (86%)	10 (29%)	14 (82%)	82 (45%)
Antenatal Appt <10 Primips	54 (95%)	12 (79%)	39 (83%)	105 (89%)
Antenatal Appt <7 Multip	3 (100%)	12 (63%)	9 (28%)	24 (44%)
Antenatal Admissions (mean)	1	0.5	0.5	0.6
Postnatal stay (days) mean	2.4	2	2.2	2.2
Referrals				
Translation Services	0	15(43%)	0	15(8%)
Social Services	29 (42%)	4(11%)	15(19%)	48 (26%)
Psychiatry	1 (1%)	0	2 (3%)	3(2%)
Domestic violence advocacy	2 (3%)	1(3%)	15 (19%)	18 (10%)
Drug/Alcohol Support	4 (6%)	0	2 (3%)	6(3%)
Family Nurse Partnership	10 (15%)	0	1 (1%)	11(6%)
Other Support services	1 (1%)	1(3%)	14 (18%)	16(9%)

Table 5: Birth Processes and Outcomes data

	Trust 1 n=68	**Trust 2 n=35**	**Trust 3 n=79**	**Total n=182**
High Obstetric risk at birth	34 (51%)	16 (46%)	51(65%)	101 (55%)
SVD	59(87%)	21 (60%)	37(47%)	117 (64%)
Instrumental Delivery	2(3%)	3 (8%)	13(16)	18 (10%)
Emergency Caesarean	7 (10%)	8 (23%)	20(25%)	35(19%)
Elective Caesarean	1 (1%)	2 (6%)	8(10%)	11(6%)
IOL	14(20%)	25 (71%)	29(37%)	68(37%)
Continuous CTG in labour	*NR	24 (68%)	56(71%)	80 (44%)
Episiotomy	2(3%)	3 (9%)	8(11%)	13 (7%)

Intact	11(16%)	15 (43%)	48(61%)	74(40%)
Sutured	24 (35%)	18(51%)	28(35%)	70 (38%)
3/4th Tear	0	2(6%)	2(3%)	4(2%)
PPH	17 (25%)	14 (40%)	8(10%)	39 (21%)

NR= not recorded

Table 6: Pain relief used for labour and/or birth

	Trust 1 n=68	**Trust 2 n=35**	**Trust 3 n=79**	**Total n=182**
Water in labour and/or birth	NR	1 (3%)	2(3%)	3 (3%)
Non-Pharmalogical	2(3%)	18 (51%)	35(44%)	55 (30%)
Epidural/Spinal	3(4%)	13 (37%)	52(67%)	68 (37%)
Opioid	NR	2 (6%)	11(14%)	13 (11%)

Table 7: Place of Birth

	Trust 1 n=68	**Trust 2 n=35**	**Trust 3 n=79**	**Total n=182**
Labourward	NR	33 (94%)	75 (96%)	108 (95%)
Birth Centre	NR	1(3%)	3(4%)	4 (4%)
Home and/or BBA	NR	0 (0%)	1(1%)	1(1%)

Table 8: Neonatal outcomes and method of feeding data

	Trust 1 n=68	**Trust 2 n=35**	**Trust 3 n=79**	**Total n=182**
Gest <37 at birth	3 (4%)	2 (5%)	9(11%)	14 (8%)
Birth weight < 2500g	4 (6%)	1 (3%)	6(8%)	11 (6%)
Apgar <8 @ 5mins	1 (1%)	2 (6%)	2(3%)	5 (3%)
NNU Admission	3 (4%)	2 (6%)	5(6%)	10 (5%)
Breastfed	51 (76%)	19 (54%)	56(71%)	126 (69%)
Artificially fed	8 (12%)	2 (6%)	23 (29%)	33 (18.3%)
Mixed Feeding	8 (12%)	12 (34%)	0	20 (11%)
Skin-to-Skin	NR	19 (54%)	67(85%)	86 (75%)
Neonatal Death	0	0	1 (1%)	1(1%)

Table 9; Performance against primary outcome criteria

No	Name	Criteria	Standard	Audit	Standard met?
1	Gestation at booking	• 10 weeks gestation	100%	**15%**	No
		• 12+6 weeks gestation		**34%**	
		• 20 weeks gestation		**45%**	
2	Antenatal appointments	• Primips: at least 10 appointments	100%	**11%**	No
		• Multiparous women- at least 7 appointments	100%	**56%**	No

Highlights

- Inequalities in birth outcomes and experiences of maternity care disproportionately affect women who live socially complex lives and they often struggle to access and engage with maternity services
- Pregnancies to women living in areas with the highest levels of poverty in the UK are over 50% more likely to end in stillbirth or neonatal death, and carry increased risk of premature birth, low birth weight, caesarean section, and maternal death
- There is a gap in knowledge around how women access and engage with their maternity service, multi-disciplinary healthcare professionals, and what impact this might have on their pregnancy outcomes and experiences.
- This audit adds to the knowledge base by giving insight into how the reality of women's access, engagement, and referral processes compare to national guidance for women living socially complex lives.